STANDARD FORM NO. 64 ~~SECRET~~ CONFIDENTIAL

Office Memorandum • UNITED STATES GOVERNMENT

TO : The Files DATE: 5 November 1957

FROM :

SUBJECT: RD-107 - Conference Report

1. General: Representatives of the , , visited Washington, D. C., 31 October 1957 to confer on Task Orders 5 and 6 of the subject contract. was represented by:

Government representatives, on a part-time basis, included:

2. Background: In an earlier visit to , the company had requested more specific guidance in the execution of the component study and news of a recent "thermocouple breakthrough" was also believed responsible for prompting this visit.

3. Component Study: Work under this task includes the design of a transmitter and receiver utilizing new components designed under a prior task, an advanced component study to improve the present components, and the design of a CW selective calling system. Mr. Jack said the three gang tuning capacity had a diameter of approximately 2.5 inches and was .5 inches thick. The plates of barium titanate are presently brittle and easily broken. Present work involves finding a backing material and bonding technique to add strength to the plates. It is also planned that barium titanate will replace conventional IF transformers in the receiver.

4. Guidance: The company had several questions concerning the specifications of a typical receiver and transmitter (RS/A-11) made available to the company. It was pointed out that these specifications were provided as an aid in familarizing with the type of equipment sought, but that it was not intended that such requirements be met in their non-conventional equipment design. The purpose of the transmitter and receiver design was to establish the worth of the new components.

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5. Progress Reports: While the company was to be complimented on the literary composition of their progress, Government engineers suggested that the reports on the component study were somewhat lacking in factual detail and generally devoid of any conclusive results. It was generally conceded that were more factual test data included in the progress reports, the Government would be better able to determine the extent of [redacted] 25X1 25X1

6. Thermoelectric Generator: [redacted] 3.5% efficiency is still good news. Present work is directed towards improving the bonding technique with alloys other than those recommended by [redacted] (which were not satisfactory) and providing a ceramic glaze to the hot junction to reduce oxidation. [redacted] elaborated on the use of ceramics and semiconductors and the possibility of employing mixed valanced alloys as thermocouple materials which suggested that he had conferred with [redacted]. Mr. [redacted] reiterated that the search for new thermoelectric materials was the original intent of the study and certainly should be pursued. In a search for information [redacted] suggested that since RADC had suggested the existance of a thermocouple efficiency breakthrough, that the work at [redacted] should be cancelled. The undersigned advised that the present work did not involve any duplication of effort since the reported breakthrough was a thermo conversion efficiency and not a thermocouple efficiency. It was stated that further information could only be released with the approval of RADC, which we did not have. 25X1 25X1 25X1 25X1 25X1 25X1

7. Inert Electrode Battery: The company submitted recommendations for a feasibility study on two types of "Inert Electrode Systems." The first, chemically activated and the second, gas activated. A water activated cell was demonstrated by [redacted] This cell consisted of inert graphite terminal pieces and foils of magnesium and silver chloride which were inserted between the terminals. It was stated that the cell demonstrated had a capacity of 13 amphere-minutes. The cell could be deactivated by removing the water after which the cell could be disassembled into very small pieces and carried in a pocket. [redacted] said that such a battery had an energy content of 20 watts per pound. (This puts it below a mercury cell - 38.2 watts per pound. Another department of [redacted] claims 42 watts per pound for their line of one shot water activated silver-chloride-magnesium cells and is probably the weight without considering the water). 25X1 25X1 25X1

[redacted] 25X1